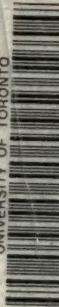


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THE NORTH POLE
AND
BRADLEY LAND

EDWIN SWIFT BALCH

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The North Pole and Bradley Land

BY
EDWIN SWIFT BALCH

Author of
Glacières or Freezing Caverns, 1900
Antarctica, 1902
Comparative Art, 1906



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THE NORTH POLE AND BRADLEY LAND.

I.

THEORIES OF MR. HARRIS AND DR. NANSEN.
JOURNEYS OF DR. COOK AND ADMIRAL PEARY.

SOME years after the successful drift of the *Fram* across the Eastern Arctic ocean, Mr. R. A. Harris, of the United States Coast and Geodetic Survey, read before the Philosophical Society of Washington, on April 9, 1904, an important paper,¹ to advocate a theory that there was land in the then still unknown Arctic. He based his theory on reports of observations about ice, tides, and currents; on the drifting of driftwood; on the reported sighting of land north of Alaska by the American whaling captain Keenan; on the traditions and legends of the Eskimo of lands in the Arctic; on the drifts of the *Jeannette* and the *Fram* and the observations of their commanders; and on the observations of numerous other explorers, among them Collinson, Osborn, McClure, Richardson, Sverdrup, and Peary. Mr. Harris

¹ *National Geographic Magazine*, Vol. XV., June 1904, pages 255-261. Repeated more at length as "Evidences of land near the North Pole," in *Report Eighth International Geographic Congress*, Washington, 1905, pages 397-406.

thought that "the tides clearly prove that there can be no large and deep polar basin, extending from Spitzbergen and Franz Josef Land to Alaska" and from the various sources mentioned he reasoned out that there must be a big mass of land, some of it in the eastern but the majority in the western hemisphere, extending between the Siberian islands, Banks Land, Grant Land and the North Pole.

Three years after Mr. Harris had broached his theory about lands in the unknown Arctic, Dr. Fridtjof Nansen² published a paper expounding the theory, that the then unknown Arctic is nearly all, if not all, ocean. Dr. Nansen based his argument largely on the movements of the sea currents and the drift of the ice, on soundings on the continental shelf of Siberia, on the nature of the ice in different parts of the Arctic ocean, on the driftwood found on the various Arctic coasts, on the temperatures of the ocean, on the tides, on meteorology, on migratory birds, and on Eskimo legends. He published with his article a map which delineates the Central Arctic wholly as an ocean.

These two theories, propounded by two scientific men like Harris and Nansen, are of more than passing interest. The region they theorized about was,

²"On North Pole Problems:" The *Geographical Journal*, 1907, Vol. XXX., pages 469-487 and 585-601.

at the time Mr. Harris wrote, entirely unknown; at the time Dr. Nansen wrote, merely scratched with fresh information. So much of this region is still unknown that these theories continue to present to-day the best conclusions which, in the lack of exact knowledge, have been reasoned out about much of this unknown region. They are good working hypotheses. But, and it is a very large but, the conclusions of Mr. Harris and the conclusions of Dr. Nansen are almost diametrically the opposites of each other. Reasoning from almost identical premises, the two scientists arrive at almost exactly contrary views. This shows that any theory about the unknown Polar regions is most uncertain, and that altho a theory may be used temporarily as a working hypothesis, it requires the proof of exploration to remove it much beyond the condition of a guess.

Since Mr. Harris expounded his views in 1904, three expeditions to the Central Arctic have already shed some light on Harris' and Nansen's theories. These are Rear Admiral Robert E. Peary's journey of 1906; Dr. Frederick A. Cook's journey of 1908; and Rear Admiral Peary's journey of 1909. All our knowledge of the Arctic regions, between the tidal crack of the ice off Grant Land and Axel Heiberg Land on the western side, and the tracks of De Long, Nansen, and the Duke of the Abruzzi on the eastern side, rests on these three journeys.

Of the three journeys of Peary, Cook, and Peary, the first was made in 1906. According to Admiral Peary's statements,³ starting from Grant Land, he went northwards, as shown on his chart, to about $85^{\circ} 15' N.$ - $74^{\circ} W.$; thence traveled or was drifted to $87^{\circ} 6' N.$, by about $50^{\circ} W.$; and thence returned to North Greenland. Peary did not discover any lands nor make any soundings suggesting lands north of $83^{\circ} 20' N.$ Somewhere near $86^{\circ} N.$ - $60^{\circ} W.$, however, latitude and longitude not given, on his up journey, Peary "traversed several large level old floes, which my Eskimos at once remarked, looked as if they did not move even in summer. * * * * Several berg-like pieces of ice discoloured with sand were noted during the march, my Eskimos saying that these looked as if we were near land."⁴ This phenomenon, for the sake of brevity, will be referred to in this article as Peary-Land-Ice. The same year, on June 24, from one of the peaks of Grant Land, Peary sighted thru his glasses "the faint white summits of a distant land," and again, on June 28, with glasses he "could make out, apparently a little more distinctly, the snow-clad summits of the distant land in the northwest, above the horizon."⁵ This land Peary marks on

³ *Nearest the Pole*, 1907.

⁴ *Nearest the Pole*, page 131.

⁵ *Nearest the Pole*, pages 202, 207.

his chart, with the name of Crocker Land, as stretching in a curved line between about $82^{\circ} 30' N.$ - $83^{\circ} 20' N.$, and $106^{\circ} W.$ - $103^{\circ} W.$. That Peary had no suspicion whatever of the existence of any land north of $83^{\circ} 20' N.$, is also shown by his map⁶ on which the Big Lead—which bears much the same relation to the Polar pack that a bergschrund does to a couloir on a mountain side—is marked as extending east and west, due north of Crocker Land, in the vicinity of the eighty-fourth parallel, up to $110^{\circ} W.$.

Admiral Peary, by his discovery in 1906 of Crocker Land, fired the opening gun in favor of Harris' theory before Nansen even published his hypothesis. As the writer of this monograph pointed out at that time, the discovery of Crocker Land by Peary proved that Harris was to some extent right, and that "the first traveler who explores Crocker Land will, perhaps, completely change all present notions on the unknown Arctic."⁷ Peary's observations somewhere near $86^{\circ} N.$ - $60^{\circ} W.$, of Peary-Land-Ice, floes which looked as if they did not move even in summer and of berg-like pieces of ice discolored with sand, likewise suggest a possible shoal and also point to the accuracy of Harris' theory.

⁶ *Nearest the Pole.*

⁷ *Bulletin American Geographical Society*, Vol. XXXIX., 1907, pages 739, 740.

Dr. Cook's journey was made in 1908. According to his own statements,⁸ Dr. Cook left Axel Heiberg Land on March 18, and steered an almost straight course northward along the meridian of 95° W. He discovered first Bradley Land in 84° 20' N.-85° 11' N. After this, between 87°-88° N., he crossed some glacial land ice, which, for the sake of brevity, will be referred to in this essay as Cook-Land-Ice. Finally on April 21, 1908, Cook arrived at the North Pole. Thence he returned south, keeping near to the meridian of 100° W., and reached Amund Rignes Land on June 14, 1908. Over the Arctic pack, Cook's marches averaged between 10 and 20 miles a day; on five days only did he make longer marches, respectively of 21, 21, 22, 23, and 29 miles. After wintering west of Baffin Bay, he returned in the early summer of 1909 to South Greenland, and thence, about the middle of August, 1909, he sailed for Europe. Cook's first statement that he had attained the North Pole on April 21, 1908, was announced to the world on September 1, 1909, in a cablegram from Lerwick, Shetland Islands, to Copenhagen, and may be seen in the evening newspapers of that date. Cook was then coming back from South Greenland on the little Danish passenger

⁸ New York *Herald*, 2 September, 1909. *The Conquest of the Pole*: New York *Herald*, September and October, 1909. *My Attainment of the Pole*, 1911.

steamer and mail boat *Hans Egede*. As this ship could not possibly have crossed the Atlantic Ocean in less than a week, it makes certain the fact that Cook left South Greenland before August 26, 1909.

Admiral Peary's last journey was made in 1909. According to his own statements,⁹ Admiral Peary started from Cape Sheridan, Grant Land, on March 1, and traveled due north between about 75° W.-80° W. Below 86° N., Professor Ross G. Marvin sounded in 310 fathoms; and between 87° N.-88° N., Peary found an extremely broken and open ice pack. He arrived at the North Pole on April 6, 1909. He left the North Pole at 4 P. M. on April 7,¹⁰ and on April 9, camped at 87° 47' N.¹¹ Thus he made 133 nautical miles, or 153 statute miles, in two days and a few more hours. These marches of Peary are the records for the Polar regions, and make the marches of Cook seem like child's play. From the North Pole Peary returned in his up tracks the whole way to Grant Land, which he reached on April 23. On this journey, Peary did not see any lands north of Grant Land. Peary cleared from Cape York, North Greenland, on August 26, 1909,¹² and his first statement that he

⁹ *The North Pole*, 1910.

¹⁰ *The North Pole*, page 302.

¹¹ *The North Pole*, page 306.

¹² *The North Pole*, page 334.

had attained the North Pole on April 7, 1909, was given to the world in four cablegrams from Indian Head, Labrador, dated September 6, 1909, six days after Cook's achievement had been announced.

Thanks to these three journeys, we already have a partial solution of the problem in physical geography propounded theoretically by Harris and Nansen as to the existence or non-existence of lands in the unknown Arctic. But, as a result of these journeys also, and thru the labors and the observations of the two distinguished explorers, Cook and Peary, several other Arctic problems have been presented to the scientific world; problems in physical geography, problems in glaciology, problems in zoölogy. Inseparably connected with these three journeys also, there is a question in historical geography of the highest interest, namely, who is the discoverer of the North Pole. Any opinion as to who discovered the North Pole must be formed at present from a comparison of the results obtained in the unknown on these three journeys: there is nothing else to turn to. The final verdict on all these questions, whether there is land or sea in the unknown Arctic, whether land ice is formed in some still unsuspected way, whether animals habitually roam far away from land over the Arctic ice, and above all, the verification of the discovery of the North Pole, depends on future exploration.

II.

TRAVELERS WHO WERE FIRST DOUBTED, AND
AFTERWARDS VINDICATED.

IT is regrettable that a controversy should have arisen in regard to the discovery of the North Pole, but since there is a difference of opinion in regard to it, historical geographers are in duty bound to sift the facts down to bed rock. For the discovery of the North Pole is an event of the first magnitude in the history of geographical exploration and geographers must know who discovered it.

That there should be doubt as to whether the North Pole has been reached, and if so, as to who reached it first, is quite in accord with the history of geographical exploration. From time immemorial, travelers have been called liars. The number of those who have been told that they were fakirs and had handed a gold brick to the public, or the equivalent of such a statement, and whose discoveries nevertheless have been verified in due time, is legion.

Basing his opinion on this historical truth, and also on the genuine ring of Cook's narrative, the writer,¹³ from the beginning of the controversy,

¹³Philadelphia *Public Ledger*, 10 September, 1909. New York *Evening Post*, 13 September, 1909. Philadelphia *Evening Bulletin*, 2 October, 1909.

has insisted, at first as a matter of belief, that Cook, in due time, would be acknowledged to be the discoverer of the North Pole. Careful study of the evidence has strengthened the writer's convictions, and this monograph in part is an attempt to present the facts and reasons on which these convictions are based.

Before, however, entering on a discussion of the evidence, it may be well to give a certain number of examples of the treatment accorded to famous travelers whose discoveries were denied at first. And this should make it clear how inaccurate and valueless any preliminary popular or even scientific denial of the claims of explorers is apt to be.

Of the first great voyage recorded, the circumnavigation of Africa by Phenician sailors, its chronicler, Herodotus, says:¹⁴ "On their return, they declared—I for my part do not believe them, but others may—that in sailing round Libya, they had the sun upon their right hand." Herodotus thus promptly denied the statement which modern geographers usually consider the best piece of evidence of the authenticity of the voyage of the Phenicians. It seems a well-merited retribution that Herodotus himself was severely scored about his veracity by numerous ancient writers, among

¹⁴ George Rawlinson: *The History of Herodotus*, Book 4, paragraph 42, 1859, Vol. III., page 35.

them Manetho, Harpocration, Josephus, Laertius, Theopompus, Lucian, and Cicero.¹⁵

Atlantis deserves a place among travelers' tales. Its existence doubted, its position unknown, Atlantis had passed into myth and legend as the fabulous invention of some unveracious traveler. Yet it turns out that the story recorded by Plato was a fairly accurate account of Minoan Crete.¹⁶

Marco Polo, greatest of medieval travelers, was generally discredited. His account of the riches of the Chinese emperor earned him the nickname of Messer Milioni. On his deathbed, he was begged by his friends to retract his extraordinary stories. As late as A. D. 1829, a German writer, K. D. Hullmann, seriously wrote of Polo's works as "the clumsily compiled contents of this ecclesiastical fiction disguised as a Book of Travels."¹⁷ But fictitious as Polo's statements seemed to his contemporaries and for centuries after, yet little by little they have been proved: one of the latest thru the rediscovery on the Pamirs of the huge-horned sheep, now bearing the name of *Ovis Poli*.

Amerigo Vespucci, to this day, remains under a cloud, for things he did not do. Accused of

¹⁵ George Rawlinson: *The History of Herodotus*, 1858, Vol. I., page 76, Note.

¹⁶ James Baikie: *The Sea Kings of Crete*, 1910, page 258.

¹⁷ Colonel Henry Yule: *The Book of Ser Marco Polo*, 1872, Vol. I., page CXXIX.

concocting fictitious narratives of imaginary voyages, not a scintilla of evidence against him has been produced. Accused of trying to rob Columbus of his fame by attaching his own name to the American continent, it is thoroly established now that it was Waldseemüller and his St. Dié friends who christened America, a name which Amerigo himself may never have heard of.¹⁸

Fernao Mendes Pinto, a Portuguese traveler of the sixteenth century in India and Japan, had his name parodied into Fernao, Mentes? Minto! (Ferdinand, do you lie? I do!); and Congreve, in *Love for Love*, wrote, "Mendez Pinto was but a type of thee, thou liar of the first magnitude." Nevertheless, from present-day knowledge, Pinto may be considered a careful observer and truthful narrator.¹⁹

Antarctic voyagers have suffered much at the hands of carping critics. Nathaniel B. Palmer, who, as far as the records show, probably first sighted and certainly first sailed along part of the mainland of Antarctica, was almost forgotten, even by his own countrymen. Robert Johnson has been called an apocryphal person by D'Urville and Fricker. Morrell's voyages have been, many

¹⁸ *The First Four Voyages of Amerigo Vespucci*, B. Quaritch, 1893, Preface.

¹⁹ Edgar Prestage: *Encyclopædia Britannica*, Eleventh Edition, Article "Pinto."

times, called apocryphal. James Weddell's voyage has been pronounced, by one critic, apocryphal. Wilkes Land, altho accepted from the time of its discovery by some geographers, has often had its very existence denied and doubted. Nevertheless the Australian expedition has now landed on it at two places and proved that Wilkes Land is located exactly where Wilkes placed it. Admiral Wilkes was accurate and truthful, and events show that those of us who insisted on his veracity were right.²⁰

The recent scientific Antarctic explorers, de Gerlache, von Drygalski, Nordenskjold, Bruce, and Charcot, have widened enormously, as far as the writer can judge, our geographical knowledge of the continent of Antarctica. Yet only a short while since an Ex-President of the Royal Geographical Society, Sir Clements R. Markham, in perhaps the most sweeping denial of geographical discovery ever made, said:²¹ "Several private expeditions were started, Belgian, German, Swedish, Scottish, French, but none of them were of any use as regards Antarctic discovery." And among the critics of some Antarctic explorers none has been more inaccurate than some other Antarctic ex-

²⁰ Edwin Swift Balch: *Antarctica: Stonington Antarctic Explorers: Antarctic Names*.

²¹ *The Geographical Journal*, 1912, Vol. XXXIX., pages 575-580.

plorers: a striking proof of the fact that the greatest discoverers are not necessarily the best historians.^{22, 23, 24}

James Bruce, who crossed Abyssinia and reached the sources of the Blue Nile in the eighteenth century, was so calumniated on his return, that he left London and lived the rest of his life in the country in Scotland. He got the best, however, of at least one of his critics, who remarked one day before Bruce and some other persons, "that it was impossible that the natives of Abyssinia could eat raw meat. Bruce said not a word; but, leaving the room, he shortly returned from the kitchen with a piece of raw beefsteak, peppered and salted in the Abyssinian fashion, You will eat that, Sir, or fight me, he said." The critic, not relishing a pistol duel with a dead shot, ate the raw beefsteak.²⁵

When the missionaries, Dr. Krapf and Dr. Rebmann, announced, about 1849, that there were snow-capped mountains in Eastern Africa, they were bitterly assailed by many European geographers who asserted that they had mistaken for

²² *Voyage of Discovery and Research in the Southern and Antarctic Regions*, 1847. Edwin Swift Balch: *Antarctica*, pages 175-182.

²³ *The Voyage of the Discovery*, 1905. Edwin Swift Balch: *Bulletin American Geographical Society*, 1906, Vol. XXXVIII, pages 30-32: *Science*, 1911, N. S. Vol. XXXIII, pages 657-659.

²⁴ *The South Pole*, 1912, London, pages 9, 10.

²⁵ B. F. Head: *The Life of Bruce*, 1830, page 531.

snow, calcareous earth or rocks, covering the summits of the mountains and presenting at a distance the appearance of snow. Altho the missionaries reported that besides seeing the snows themselves, the natives said that the silver-like stuff, when brought down in bottles proved to be nothing but water, and that many who ascended the mountain perished from the extreme cold, or returned with frozen extremities, Drs. Krapf and Rebmann were wholly disbelieved in. Mr. Cooley, for instance, wrote of the snow as "a most delightful mental recognition only, not supported by the evidence of the senses" and sneered at the narrative of the natives as to the frost-bitten explorers as a fireside tale.²⁶

Du Chaillu, discoverer of the Gaboon pygmies, and hunter of the gorilla, told the present writer himself that he was advised by his publisher "to stick to it" and that he could not at first understand what was meant. He found out when his accounts of animals and natives were stigmatized as false and his first journey into the interior pronounced a fiction, even by Heinrich Barth, and to some extent by Dr. Petermann, both of whom should have known better.²⁷

²⁶J. Lewis Krapf: *Travels, Researches and Missionary Labours*, 1860, pages 543, 544.

²⁷Paul B. Du Chaillu: *A Journal to Ashango Land*, 1867, Preface.

Henry M. Stanley, as a reward for finding and relieving Dr. Livingstone, was welcomed in England with the information that it was Dr. Livingstone who had discovered and relieved Mr. Stanley, who was nearly destitute, whilst Dr. Livingstone was in clover. And when Stanley read an account of his journey before the British Association, the Vice-President said to the meeting, "We don't want sensational stories, we want facts."²⁸

Of David Livingstone, greatest of African travelers, and who, above all men, even Abraham Lincoln, put an end to slavery, Henry M. Stanley records.²⁹ "I was led to believe that Livingstone possessed a splenetic, misanthropic temper; some have said that he is garrulous, that he is demented; that he has utterly changed from the David Livingstone whom people knew as the reverend missionary; that he takes no notes or observations but such as those which no other person could read but himself; and it was reported, before I proceeded to Central Africa, that he was married to an African princess."

John Colter, a member of the Lewis and Clark expedition, was the first white man to visit the

²⁸Henry M. Stanley: *How I Found Livingstone*, 1872, Chapter XVII.

²⁹Henry M. Stanley: *How I Found Livingstone*, 1872, Chapter XII.

geysers of the Yellowstone. For many years thereafter, the region he described and which was, of course, considered fictitious, was called derisively "Colter's Hell."³⁰

Civilized peoples are not the only ones to disbelieve travelers. For when George Catlin tried to explain to some South American Indians about hail, snow, and the hard ice of frozen rivers, he was scornfully derided by the old doctor—the scientific element—of the tribe, nearly had a fight, and received the name of "Hard Water."³¹

Of the two men who independently discovered the meaning of stone implements and their importance in the history of man, the first, the Rev. J. McEnergy, died sixteen years after his discovery, with his discovery unrecognized and his papers refused publication. The second, Boucher de Perthes, was ridiculed for more than ten years, and literally forced his discovery on skeptical scientists.³²

Don Marcelino de Sautuola, in November, 1879, at the cave of Altamira in northern Spain, made the first discovery of Pleistocene wall paintings. He was promptly discredited by several learned archeologists who proved, to their own and every-

³⁰Captain H. M. Chittenden: *The Yellowstone National Park*, 1895, Chapter III.

³¹*Life Amongst the Indians*, 1861, pages 257-259.

³²W. Boyd Dawkins: *Cave Hunting*, 1874, pages 14-17.

one else's satisfaction, that de Sautuola did not know what he was talking about. De Sautuola died unvindicated in 1888. Nevertheless, to-day some of these same archeologists rank de Sautuola at the very top as one of the great archeological discoverers.³³

For several hundred years, seamen reported sighting gigantic cuttle fish and were considered, in return, as impudent fabricators. The great squid, caught in herring nets in 1874 off the coast of Newfoundland, with a body 7 feet long and arms 24 feet long³⁴—the most repulsive looking brute the writer ever saw on exhibition—settled as true the sailors' supposedly mendacious yarns.

The latest traveler whose experiences have aroused skepticism, is Major P. H. Fawcett, R. A. He has stated that on the Abuna River, one of the headwaters of the Amazon, he killed in 1906 an anaconda 65 feet long, that the Brazilian Boundary Commissioners killed one 85 feet long, and that he does not believe these are exceptional in size.³⁵ If one mentions Major Fawcett's statements, the usual reply is, "What brand of

³³ Emile Cartailhac and Henri Breuil: *La Caverne d'Altamira*, 1906. Joseph Déchelette: *Manuel d'archéologie préhistorique, celtique et gallo-romaine*, 1908, Vol. I., Chapter X.

³⁴ *Encyclopædia Britannica*, Eleventh Edition, Article "Cuttle-fish."

³⁵ *The Geographical Journal*, 1910, Vol. XXXV., page 523.

whisky does he drink?" The writer cannot answer this query, but possibly Mr. Algot Lange could, for, in July, 1910, he also killed one of these "sucurujus" 56 feet in length.³⁶

Many other travelers and discoverers, besides the few chosen here as examples, have suffered from a doubting world, and, in the fulness of time, have been vindicated. What has happened in the past will doubtless happen again in the future. Historical precedent points to historical geographers recognizing Dr. Cook as the discoverer of the North Pole, with Admiral Peary as a close second.

³⁶*In the Amazon Jungle*, 1912.

III.

ASTRONOMICAL OBSERVATIONS. MOUNT McKINLEY. COPENHAGEN VERDICT. COMPARATIVE METHOD IMPERATIVE IN INVESTIGATING TRAVELERS' REPORTS.

BEFORE attempting to discuss the question of the discovery of the North Pole itself, it seems well to call the readers' attention to the fact that no traveler could ever make sure of absolutely reaching it. To the mathematician, the North Pole is a pin point, an imaginary "Big Nail." To the Arctic explorer, the North Pole can be only a locality. No sledge traveler, sitting on a moving ice floe which may open into a yawning lead at any moment, with his stomach unfilled by a piece of nasty pemmican, with his toes and fingers contorted and his eyelashes freezing together from the cold, and with the spring sun barely rising above the horizon amid refractions and mirage, can possibly take observations accurately enough to be sure of being at the mathematical North Pole. But if one considers the traveler's North Pole as a locality, for instance like Philadelphia or New York City, then a traveler might arrive within ten miles of the scientific North Pole, and claim truthfully that he had reached the North Pole, just as a traveler might arrive at League Island or Chestnut Hill,

or at the Battery or Harlem River, and correctly assert that he had been at Philadelphia or New York City. Nearer than that no one will ever approach with certainty to the North Pole, unless, and it is not probable, some one should happen to drift across it in a ship, in the middle of summer.

That it is exceedingly difficult for travelers to take astronomical observations in the vicinity of the North Pole, and that when taken such observations at the best are uncertain and unreliable, is well explained by Admiral Sir Albert H. Markham, R. N., a member of the Nares expedition, who held for some years the record for farthest north. He says:³⁷ "I am inclined to say that when a high latitude has been reached by a traveller * * * * there are only two observations to be taken that are of any real importance * * * * These are for latitude, and those for ascertaining the variation of the compass * * * * I never bothered my head about taking any observations for determining my longitude, but I was very careful to check my course by constant observations for the variation of the compass. * * * * The only other observations that I took were those for latitude * * * * The taking of these apparently simple observations was not quite so easy as might be

³⁷ *The Geographical Journal*, 1910, Vol. XXXV., pages 303, 304.

imagined * * * * The difficulties which were experienced by me in the neighborhood of the 83rd parallel, and during the months of May and June, would be very materially augmented in a higher latitude, and would be doubly intensified at an earlier period of the year, say in April."

Dr. William Spiers Bruce, a polar explorer in both hemispheres of unimpeachable accuracy and reliability, also gives precious testimony about the dubious value of polar astronomical observations in the following words:³⁸ "It should be understood that the getting of accurate longitude and even latitude in these regions, where it is not always possible to get a solar observation, and at a time of the year—in continuous daylight—when it is impossible to obtain any stellar ones, is so difficult, that it is scarcely fair to say that a land does not exist because it is not within a few miles of the assigned position; and in the matter of longitude this is especially the case, for it is just as likely that the ship which maintains that the land is not in such and such a position may itself not be where it thinks it is."

There is a somewhat curious resemblance in the recorded actions of the claimants for the discovery of the South Pole and that of the North Pole. The South Pole was captured by a

³⁸ *The Scottish Geographical Magazine*, 1912, Vol. XXVIII., page 315.

"dark horse." Unheralded and uncheered, Roald Amundsen slipped down to the Great Ice Barrier, and, by masterly strategy and great luck, quietly took away the prize from the brave and gallant Captain Scott and his heroic comrades. In the same way, with the cheapest outfit, but with indomitable grit, Cook started unexpectedly, and, as far as the writer can judge from the geographical evidence now accessible, won out in the attempt to reach the great northern goal so many competitors have striven for in vain.

In stating this opinion, the writer must emphasize the fact that this opinion is based on a comparison of the geographical facts and evidence presented by Cook and Peary: it is not a matter of faith. Before taking up this evidence, however, it is necessary to refer briefly to what has been done already in the matter.

In the controversy which ensued upon the return of Cook and Peary, the geographical evidence was mainly sidetracked and extraneous points insisted on. Gradually the real facts of the case were obscured under a cloud of irrelevant matter, so that finally many persons, many of them scientific men, and even some scientific bodies, accepted as a matter of belief the frantic theory that Cook's journey was largely fictitious. If this theory is examined, I think it will be found to be based on circumstances which have nothing to do with the

case or which are relatively unimportant and not on the vital facts. One childish reported statement, seriously presented as an argument, is that a couple of Eskimo are said to have said that they went only two sleeps from land. Another ridiculous argument advanced is that Cook could not have made the daily marches he said he did. One entirely irrelevant circumstance, much insisted on, is whether Mount McKinley was or was not ascended by Cook. An extremely quaint disproof offered is that, shortly after his return to America, Cook went to Europe. The most curious circumstance of all, however, is that many persons, even scientific men, admit that they have never opened Cook's *My Attainment of the Pole*, much less examined Cook's *The Conquest of the Pole*, yet do not hesitate to express an unfavorable opinion of Cook's claims. Imagine any judge giving his opinion about a law case, without hearing and examining the evidence! The gist of the matter has nothing to do with remarks by Eskimo, with Alaska, nor with trips to Europe; nor can the question be expounded by people who have not looked into it.

These various supposed arguments have gradually dwindled away to the stock repartee, "But how about Mount McKinley?" So it may be as well to say a word about that. The ascent of Mount McKinley by Cook can never be proved or

disproved, unless perchance there is a big enough stoneman on top to withstand Alaska storms. This is the case also with thousands of other ascents. The leading example may suffice as an illustration. Mr. W. W. Graham claimed to have reached in 1883 the summit of Kabru, 24,015 feet, in the Sikhim Himalaya. A violent controversy thereupon arose, and rivers of ink flowed in favor of or against the reality of his ascent.³⁹ Mr. Graham's ascent has never been proved or disproved. But the subject got its quietus when the Duke of the Abruzzi ascended to 24,600 feet, which proved at least that Mr. Graham could have ascended to 24,015 feet.

The difficulty of producing proof sometimes of the reality of an ascent may perhaps be brought home to the readers of this monograph by asking them how they could prove, except by a mere statement, any ascent they have themselves made? Presumably they have been up the Rigi or Mount Washington, or more probably both. But what proof could they offer beyond their word?

³⁹ *Alpine Journal*, February, 1884, Vol. XI., pages 402-407. *Alpine Journal*, August, 1884, Vol. XII., pages 25-52. *Alpine Journal*, August, 1884, Vol. XII., pages 52-60. *Alpine Journal*, November, 1884, Vol. XII., pages 99-108. *Popular Science Monthly*, March, 1895, Vol. XLVI., pages 668-670. *Bulletin American Geographical Society*, 1904, Vol. XXXVI., pages 107-109. *National Geographic Magazine*, December, 1906. *Appalachia*, 1907, Vol. XI., pages 257-259. *Appalachia*, 1909, Vol. XII., pages 30-33.

The opinions of inhabitants of Alaska in regard to Cook's ascent of Mount McKinley, whether for or against its reality, are not of the slightest value. Mr. Douglas W. Freshfield, one of the greatest of living mountaineers, formerly Secretary and now one of the Vice-Presidents of the Royal Geographical Society, may be cited in support of this statement when he says:⁴⁰ "If Himalayan travelers really think the opinion of natives on a mountain ascent, in which they did not take part, of the slightest value, their own opinion is thereby shown to be worthless * * * * In the Alps, much more in the Caucasus and other wild countries, it is exceedingly rare for an ascent made by a traveller with guides strange to the locality to be recognized on the spot either at the time or afterwards. Lieutenant Payer, afterwards of Arctic fame—I may be excused the personal recollection, as the incident stands permanently recorded in 'Petermann's Mitteilungen'—had in 1864 to climb the Presanella and find my bottle in order to get the first hint of any previous ascent. The numerous ascents of Ararat are one and all disbelieved in by dwellers at its base. But the fact is notorious, and every mountaineering periodical teems with instances of it. The man who can quote native opinion, as it is quoted by Mr.

⁴⁰ *The Alpine Journal*, 1884, Vol. XII., pages 100, 103.

Graham's Indian detractors, shows that he is utterly ignorant of the history of mountain exploration."

A photograph stated by Cook to be one of the summit of Mount McKinley has been claimed to be a fake, because a photograph of another summit looks like it. It happens, however, that such resemblances in mountain tops and their photographs occur, as the following quotation proves. In a review of Mrs. Main's *High Life and Towers of Silence*, the reviewer says:⁴¹ "Several of the illustrations in the book, are, we gather, from photographs taken by the accomplished authoress, and are fairly well reproduced. One of them (the W. peak of the Two Sisters near Pontresina from the E. peak) is amusingly like Mr. Donkin's well-known photograph of the summit of the Géant."

Someone will undoubtedly reach, in the years to come, Mount McKinley's apex. Even this will neither prove nor disprove Cook's claim. High mountain tops change. The rocks are split by frost, they are struck by lightning, they are buried in snow, they disappear under cornices, they are carried away in avalanches. Occasionally mountains are shaken by earthquakes, an occurrence which has just been reported about Mount McKinley itself.⁴² "*Tout lasse, tout passe, tout casse,*"

⁴¹ *The Alpine Journal*, 1887, Vol. XIII., page 187.

⁴² *The Geographical Journal*, 1912, Vol. XL., page 656.

and nothing more so than mountain tops. Relics of ascents vanish, buried in snow or blown away by the raging hurricanes. The writer himself made, in 1882, the second ascent of the Nadelhorn, 4334 meters,⁴³ the third highest summit of the Mischabel range near Zermatt, and did not find a vestige of anything left by the natives of Saas who had made the first ascent twenty-three years before.

That the next climber of Mount McKinley will almost surely find the summit different from what it was at the time Cook first trod upon it, can be shown by the following statement of one of the most famous of mountain climbers, Edward Whymper, about one of the most wonderful of mountains, the Matterhorn, which he was the first to climb,⁴⁴ when he says: "Questions having been frequently put to me respecting the immediate summit of the Matterhorn, and difficulties having been expressed as to the recognition of the two views given upon pp. 279 and 281, I made an ascent of the mountain in 1874 to photograph the summit, in order that I might see what changes had occurred since our visit of ten years before. The summits of all high mountains vary from time to time, and I was not surprised to find that the Matterhorn was no

⁴³ *Appalachia*, 1896, Vol. VIII., pages 157-164.

⁴⁴ Edward Whymper: *The Ascent of the Matterhorn*, London, John Murray, 1880, page 312.

exception to the general rule. It was altogether sharper and narrower in 1874 than 1865. Instead of being able to 'run-about,' every step had to be painfully cut with the axe; and the immediate summit, instead of being a blunt and rounded eminence, was a little piled up cone of snow which went to a very sharp point."

It is needless, however, to enlarge on this matter, for the most important fact in regard to the ascent of Mount McKinley is that it has nothing to do with the question of the discovery of the North Pole, any more than it has with the Balkan War or the growing use of the telephone. It is absolutely irrelevant as evidence.

Probably the one occurrence which has acted most powerfully on scientific opinion is what may, for brevity, be called the Copenhagen verdict. Shortly after Cook's return, he sent copies of his note-books and later his original note-books to the University of Copenhagen and these were examined by a special committee of members of the University. The writer has not seen any report published by these gentlemen themselves, but the gist of it is as follows: "The copy of Dr. Cook's note-books which had been sent to the University contained no astronomical records, but only results, and the Committee stated that there were no elucidatory statements which might have rendered it probable that astronomical observations had

really been taken. Nor were any practical details of the journey supplied such as would enable the Committee to form an opinion relative to Dr. Cook's claim. * * * * They find that the evidence submitted contains not the slightest proof that Dr. Cook reached the North Pole, nor, they state, is there any decisive proof to the contrary."⁴⁵

In inquiring into the Copenhagen verdict, it seems well to inquire also into the proper method for arriving at conclusions about the reports of travelers. And this method is the comparative method. To arrive at any certainty about the work of any traveler, his reports must be compared with those of other travelers. It is the geographical evidence obtained by later travelers which proves or disproves the geographical evidence presented by the first explorer of any region. The man who breaks into the unknown may say what he chooses and present such astronomical observations as he sees fit, but his proof rests on his word. But if the next traveler corroborates the discoverer, instantly the first man's statements are immeasurably strengthened.

To solve such a problem as that of who discovered the North Pole this comparative method seems to the writer the only one available. It is

⁴⁵ *The Geographical Journal*, 1910, Vol. XXXV., pages 200, 201.

not a matter of belief, it is a matter of comparison and reasoning. It is not the evidence which Cook produces which, in itself alone, could prove Cook's claims. It is the geographical evidence offered by both Cook and Peary, which, when carefully compared, affords, in the writer's judgment, the only means of arriving at a conclusion. It is Peary's statements and observations which prove, as far as can be proved at present, Cook's statements. That such is the case, is in strict accord with geographical precedent. All great explorers who break into the absolute unknown, are confirmed or refuted by succeeding travelers. Marco Polo was confirmed by many other travelers. Wilkes was confirmed by von Drygalski, Davis and Mawson. Du Chaillu was confirmed by Schweinfurth, Stanley and Donaldson Smith. Cook's statements will take the usual course: endorsed already thru Peary's statements, they will be strengthened or weakened by the next travelers, perhaps Amundsen and MacMillan, who may penetrate the Western Arctic north and northwest of Grant Land.

It is perhaps not to be wondered at that when, on the return of Cook and Peary, proofs were called for, no one thought at first of turning to the comparative method. Neither the travelers themselves, nor any scientific men, nor any scientific societies seem to have dreamed of such a thing.

The Copenhagen scientists were asked to pass on Cook's report: they were not asked to compare it with Peary's narrative: and apparently they did not do so. All men of high character and absolute impartiality, they returned the only verdict possible on the evidence presented: neither proven nor disproven. They were asked to settle an impossibility: but the queer thing is that neither they nor anyone else saw at the time that it was an impossibility.

Mr. W. J. Armbruster appears to have been the first man to lock horns with the Copenhagen Committee, and to state that "it was known, or should have been known, in advance that any other verdict was rationally impossible."⁴⁶ Mr. Armbruster, moreover, does not yet, as far as the writer knows, seem to have had any followers.

Rear Admiral Schley, U. S. N., evidently examined the question of the discovery of the North Pole comparatively, but unfortunately he appears to have written only a short letter,⁴⁷ stating that he considered that Cook and Peary both arrived, as near as man could be sure of doing, at the North Pole.

The first man apparently to apply seriously at any length the comparative method towards the

⁴⁶ "The Martyrdom of Dr. Cook;" *The Mirror*, St. Louis, 3 February, 1910.

⁴⁷ Published in *My Attainment of the Pole*, page 584.

solution of the question of who discovered the North Pole, is Mr. Evelyn B. Baldwin. In an able and dispassionate essay⁴⁸ he marshalled some of the geographical and zoölogical evidence relating to the discovery of the North Pole. Baldwin's article is of capital importance in the history of geographical discovery, as being probably the first to apply the comparative method, the only method available, to the elucidation of the question of the discovery of the North Pole: it is really pioneer work, and may prove the forerunner of other valuable geographical comparisons.

In attempting now to compare the evidences presented by Cook and Peary about their respective journeys, it must be pointed out first that the only facts of the slightest importance in regard to the discovery of the North Pole are the facts relating to the regions in the Western Arctic between 83° 30' N., and the North Pole. The reason for this is a simple one. Thru the voyages of Nares, Greely, Sverdrup, and Peary himself, the main geographical facts relating to the regions below 83° 30' N., were already fairly well known before the voyages of Cook in 1908 and of Peary in 1909. From the narratives of Nares, Greely, Sverdrup and Peary, some extraordinarily clever and able romancer, like Jules Verne with his Captain Hatteras for

⁴⁸ Published as an appendix to Cook's *My Attainment of the Pole*, pages 585-594.

instance, might conceivably possibly have produced something vaguely resembling Peary's narrative as far as Cape Sheridan and Cook's narrative as far as Crocker Land. But, beyond $83^{\circ} 30'$ N., the regions traversed by Cook and Peary were, when they started, wholly unknown, and to this day there is no other information except what they have given the world. It is from the statements, the actions and the observations of the two explorers about what they saw and what they did between $83^{\circ} 30'$ N., and the North Pole, that any opinion as to the discovery of the North Pole must be formed. These statements, telling of the experiences and discoveries of Cook and Peary, offer to the historical geographer all the evidence—geographical, glaciological, zoölogical and astronomical—which there is extant. And if these various statements, especially those relating to geographical and glaciological facts, are compared, certain important deductions necessarily follow.

IV.

RECORDS OF DR. COOK AND ADMIRAL PEARY.

IN an examination of the facts presented by Dr. Cook and Admiral Peary, of the region in the Western Arctic between $83^{\circ} 20' N.$, and the North Pole, the first point which must be inquired into is the records published by the two explorers about their respective journeys. About Admiral Peary's journey of 1906, his book, *Nearest the Pole*, covers everything of geographic importance.

There are three records of Dr. Cook's journey of 1908. Cook's first announcement was a long cablegram sent from Lerwick, Shetland Islands, and published in the New York *Herald* of September 2, 1909. The full original narrative was sent immediately after this and was published in the New York *Herald* between September 15 and October 7, 1909, with the title, *The Conquest of the Pole*. Both of these were written and sent before Cook could by any possibility have seen or heard any of the results of Peary's last expedition. In 1911, Cook published a book, *My Attainment of the Pole*, which, by comparison, will be found to be mainly an enlargement of *The Conquest of the Pole*. In *My Attainment of the Pole* some passages have been much increased and others have been modified and corrected and somewhat changed. But the vital

points, the accounts of Bradley Land, of Cook-Land-Ice, and of the ice at the Pole, in the *Herald* and in *My Attainment of the Pole* are nearly identical. And their dates of publication in the *Herald* of September 2, and October 1, 3 and 5, 1909, make it certain that Bradley Land, Cook-Land-Ice, and the conditions of the ice at the North Pole were made known to the world by Cook and that he did not borrow his facts from any other explorer.

While the all-round geographer may peruse at length the incidents of Dr. Cook's journey in *My Attainment of the Pole*, it is necessary for the historical geographer, for historical purposes, to turn to Cook's original statements, published in the New York *Herald*. The reason for this is that these statements can be based on nothing but Cook's own observations. When Cook left South Greenland, nothing whatever was known there to which Cook could have turned for information. For Cook started for Denmark from South Greenland before Peary started for Labrador from North Greenland; and, therefore, everything that Cook stated or wrote or published immediately after his arrival in Europe must be based on what Cook observed or experienced himself. Cook's original narrative stands on its own merits; it is the first and most vital proof of Cook's veracity, and yet it has passed almost unnoticed.

Cook himself must have written the original accounts in the *Herald* of his journey from $83^{\circ} 20'$ N., to the Pole from the observations he had himself made, for the simple reason that no parties except those of Cook and Peary have been beyond $83^{\circ} 30'$ N., in the Western Arctic; that the journeys of Peary were made in longitudes far to the east of Cook's journey; and because the last expedition of Peary had not returned at the time Cook first gave out his results. It is especially important to notice that up to this year 1913, there is no one except Cook who has been anywhere in the Arctic north of Axel Heiberg Land and Grant Land in the longitudes where Cook traveled. Cook alone has been where Bradley Land could be sighted. There can be no possible doubt that if Bradley Land is in $84^{\circ} 20'$ N.– $85^{\circ} 11'$ N., by about 102° W.– 106° W., Cook, and Cook alone, is its discoverer.

Altho anyone who chooses may consult the files of the New York *Herald* in a certain number of the bigger public libraries, as these files are not easily accessible to many persons, it is necessary to give some lengthy quotations from Cook's original articles in the *Herald*.

The New York *Herald* of Thursday, September 2, 1909, contains a cablegram from Lerwick, Shetland Islands, covering one page and one extra column, under the heading *The North Pole is discovered by Dr. Frederick A. Cook, who cables to the Herald an*

exclusive account of how he set the American flag on the world's top.

In this cablegram it is said:

"On March 30 [1908] the horizon was partly cleared of its smoky agitation, and over the western mist was discovered a new land.

"The observations gave our position latitude 84 deg. 17 min., longitude 86 deg. 36 min. [Cable error.]

"The urgent need of rapid advance on our main mission did not permit a detour to explore the coast.

"Here were seen the last signs of solid earth. Beyond there was nothing staple [*sic*] and even on scaling [*sic*] nothing was noted to mark the terrestrial Polar solidity.

* * * * *

"Beyond the eighty-sixth parallel the icefields became more extensive and heavier, the crevices fewer and less troublesome, with little or no crushed ice thrown up as barriers.

"From the eighty-seventh to the eighty-eighth, much to our surprise, was the indication of land ice.

"For two days we travelled over ice which resembled a glacial surface. The usual sea ice lines of demarkation were absent and there were no hummocks or deep crevices.

"There was, however, no perceptible elevation and no positive sign of land or sea.

* * * * *

"An endless field of purple snows. No life. No land. No spot to relieve the monotony of frost. We were the only pulsating creatures in a dead world of ice."

The full original narrative of Cook's expedition was published under the title of *The Conquest of the Pole* in 1909, in the New York *Herald*, in twelve instalments on: Wednesday, September 15; Friday, September 17; Sunday, September 19; Tuesday, September 21; Thursday, September 23; Saturday, September 25; Monday, September 27; Wednesday, September 29; Friday, October 1; Sunday, October 3; Tuesday, October 5; Thursday, October 7.

On Friday, October 1, 1909, the narrative in *The Conquest of the Pole* says:

"The observations placed us at latitude 84 deg. 50 min., longitude 95 deg. 36 min.

"In the occasional clearing spells for several days we had seen sharply defined land clouds drifting over a low band of pearly fog, and we had expected to see land when this veil lifted. We had, however, not anticipated to see so long a line of coast. The land as we saw it gave the impression of being two islands, but our observations were insufficient to warrant such an assertion. They may be islands, they may be part of a larger land extending far to the west. What was seen of the most southerly coast extends from 83 deg.

20 min. to 83 deg. 51 min., close to the 102d meridian.

"The land has an irregular mountainous sky line, is perhaps eighteen hundred feet high, and resembles in its upper reaches the high lands of Heiberg Island. The lower shore line was at no time visible.

"From 84 deg. 23 min. extending to 85 deg. 11 min., close to the 102d meridian, the coast is quite straight. Its upper surface is flat and mostly ice capped, rising in steep cliffs, to about twelve hundred feet. The lower surface was so indistinctly seen that we were unable to detect glacial streams or ice walls. Both lands were hopelessly buried under accumulated snows.

"We were eager to set foot on the newly discovered coast, for we believed then, as proved by later experience, that these were the earth's northernmost rocks, but the pressing need for rapid advances in the aim of our main mission did not permit of detours."

On Sunday, October 3, 1909, the narrative in *The Conquest of the Pole* continues:

"Over the newly discovered coast line was written Bradley Land, in honor of John R. Bradley, the benefactor of the expedition.

* * * * *

"The observations of April 11 gave latitude 87 deg. 20 min. longitude 95 min. 19 sec. [sic.]

The pack disturbance of Bradley Land was less and less noted in the northward movement. The fields became heavier, larger and less crevassed. Fewer troublesome old floes and less crushed new ice were encountered.

* * * * *

"From the eighty-seventh to the eighty-eighth parallel we passed for two days over old ice without pressure lines or hummocks. There was no discernable line of demarkation for the fields, and it was quite impossible to determine if we were on land or sea ice. The barometer indicated no elevation, but the ice had the hard, waving surface of glacial ice, with only superficial crevasses. The water obtained from this was not salty, but all of the upper surface of the ice of the polar sea makes similar water. The nautical observations did not seem to indicate a drift, but nevertheless the combined tabulations do not warrant the positive assertion of either land or sea for this area."

On October 5, in *The Conquest of the Pole*, the following statements are made:

"Signs of land were still seen every day, but they were deceptive optical illusions, and a mere verdict of fancy * * * * The mirages turned things topsy turvy. Inverted lands and queer objects ever rose and fell in shrouds of mystery, but all of this was due to the atmospheric magic of the midnight sun.

"From the eighty-eighth to the eighty-ninth the ice was in very large fields and the surface was less irregular, but in other respects it was about the same as below the eighty-seventh. * * * * *

The color of the sky and the ice also changed to deeper purple blues. * * * * At last we had reached the boreal centre * * * * Endless fields of purple snows. No life, no land, no spot to relieve the monotony of frost. We were the only pulsating creatures in a dead world of ice."

In the "Copy of the Field Notes" in *My Attainment of the Pole*, page 571, Cook says of Bradley Land: "March 30: Land. 9 A. M., cleared; land was seen; westerly clouds settled over it. Observations 84, 50, 90.36; bearing of land, southern group, West by South to West by North true. Other bearings taken later place a coast line along the 102 meridian from latitude 84° 20' to 85° 10'. There must be much open water about the land, for banks of vapor persistently hide part. A low fog persistent; cannot see shore; for days we have expected to see something W., but never a clear horizon. Probably two island, S. like Heiberg, 1800 ft. high, valleys, mountains, snow, N., table 1000, thin ice sheets, bright nights." In *My Attainment of the Pole*, pages 244-246, Cook also says of Bradley Land: "As well as I could see, the land seemed an interrupted coast extending parallel to the line of march for about fifty miles, far to the west. It

was snow covered, ice sheeted and desolate. But it was real land with all the sense of security solid earth can offer. * * * * This new land was never clearly seen. * * * * There were two distinct land masses. The most southern cape of the southern mass bore west by south, but still further to the south there were vague indications of land. The most northern cape of the same mass bore west by north. Above it there was a distinct break for 15 or 20 miles, and beyond the northern mass extended above the eighty-fifth parallel to the northwest. The entire coast was at this time placed on our charts as having a shore line along the one hundred and second meridian, approximately parallel to our line of travel. At the time the indications suggested two distinct islands. Nevertheless, we saw so little of the land that we could not determine whether it consisted of islands or of a larger mainland. The lower coast resembled Heiberg Island, with mountains and high valleys. The upper coast I estimated as being about one thousand feet high, flat, and covered with a thin ice sheet."

There is a discrepancy between the narrative in the *Herald* and the account in *My Attainment of the Pole* which must be explained. The *Herald* places the southern point of Bradley Land in $83^{\circ} 20' N.$: *My Attainment of the Pole* places it in $84^{\circ} 20' N.$ It is evident that the figures in the *Herald*

are a printer's error, probably due to bad calligraphy. For in both accounts Bradley Land is mentioned as being seen from one position, and both accounts agree in every other particular but in the numerals. Cook could readily have seen fifty miles of coast, he could scarcely have seen a hundred and ten miles, at one glance. It must be noticed, however, that this printer's error in the figures of the latitudes in nowise affects the existence of Bradley Land.

Admiral Peary's journey of 1909 is well described in his book *The North Pole*, published in 1910. This gives a straightforward and lucid account of a voyage, which, in its conception and execution, could not have been improved on. Up to various places as far as $87^{\circ} 47' N.$, where Captain Bartlett turned back, the accuracy of Peary's statements are vouched for by the testimony of Borup, MacMillan and Bartlett, and by the notes of Professor Marvin. That Peary arrived at the traveler's North Pole, that is within ten miles of the geographical North Pole, is accepted as established thru his astronomical observations.

Admiral Peary's first statements of his attainment of the North Pole were four short cablegrams dated Indian Head, Labrador, 6 September, 1909, and addressed to the Associated Press, New York City; G. A. Carmack, Secretary New York Yacht Club; Herbert L. Bridgman; and Mrs. R. E.

Peary. They were published in the New York *Herald* of 7 September, 1909. However, it is not imperative for the historical geographer to turn to Peary's original statements in the newspapers about his journey of 1909, for the simple reason that everything that Peary cabled or wrote to newspapers comes subsequent to Cook's original cablegram account published on September 2, 1909. This fact must be brought out clearly, definitely and positively. For this fact makes Peary's position the exact reverse of Cook's position. Cook, when he penned his cablegram announcing the conditions at the North Pole, could not have turned for information to Peary nor to anyone else in the world; Peary, on the contrary, when he penned his original statements, could, like everyone else in the world, have turned for information to Cook. It is therefore of prime importance that Peary's astronomical observations are accepted as proving that Peary reached the traveler's North Pole, because Peary's account of the conditions at the North Pole corroborates and verifies in every detail Cook's account of the conditions at the North Pole.

The vital and decisive historical fact connected with the records relating to the discovery of the North Pole is that Cook's announcement, in his cablegram published in the New York *Herald*, 2 September, 1909, that at the North Pole there

is "an endless field of purple snows. No life. No land." is the first statement ever made by anyone claiming to be an eye witness of conditions at the North Pole. It is authoritative in giving Cook priority in recording what the North Pole looks like, and there can never be the slightest question that Cook was the first to record its attainment. Cook elaborated the account of the discovery of and the conditions at the North Pole in *The Conquest of the Pole*, which was written before Peary's return and sent to America almost simultaneously with Peary's return. History must inevitably pronounce Cook the describer of the North Pole, for it is an historical fact that the first account of the North Pole was given to the world by Cook.

V.

BRADLEY LAND.

If one examines Cook's original records, of which the first was published before Peary's return, and the other written before Peary's return, there are three points in particular which claim attention. The first is the account of the land sighted in $84^{\circ} 20'$ N.- $85^{\circ} 11'$ N. The second is the glacial land ice in 87° - 88° N. The third is the account of the discovery of the North Pole and the description of the ice of the North Pole. They are all three mentioned in the cablegram published in the *Herald* of September 2, 1909, and described more at length in *The Conquest of the Pole*. The first and second of these discoveries support Harris' theory.

Peary's account, in *The North Pole*, of his journey of 1909, on the contrary, at first blush, seems wholly corroborative of Nansen's theory. From Grant Land to the North Pole and back, Peary was entirely on sea ice. He saw no land, he observed no land ice. During his trip the ice does not seem to have been in any violent motion, since Peary returned in his up tracks. From anything that Peary himself observed about the surface of the Arctic on his last journey, Nansen's theory is correct. Peary makes no suggestion in

any of his reports, nor in his books, of knowing of any land north of $83^{\circ} 20' N.$ Nevertheless, Peary, in regard to Cook's three most important discoveries, forcibly corroborates Cook.

Cook's first great discovery is Bradley Land. This land Cook says he sighted from a position in $84^{\circ} 50' N.$ - $95^{\circ} 36' W.$, and that it extends from $84^{\circ} 20' N.$, to $85^{\circ} 11' N.$, with a break, a strait or an indentation, in the middle. Cook places Bradley Land in about $102^{\circ} W.$; but it must be remembered that distances in the Polar regions are usually underestimated, and that this coast, therefore, might easily be situated in $105^{\circ} W.$, or even farther west. From Cook's observations it seems possible that Bradley Land consists of two islands situated on opposite sides of a frozen channel: from the position from which Cook sighted it, however, Bradley Land must resemble Mount Desert Island and Somes Sound, as seen from far out at sea.

Bradley Land, according to Cook's observations, terminates to the south in about $84^{\circ} 20' N.$, with vague indications of land still farther in the south. This means that Bradley Land, which, with its indentation, Cook estimates at some fifty geographical miles in length, is entirely and completely north of Crocker Land. For Crocker Land, according to Peary's map, terminates to the north in about $83^{\circ} 20' N.$ Whether there is land or

water in the intervening sixty geographical miles is a problem, but in order to be perfectly fair to both explorers, and to allow for errors in observations, one might split the difference at $83^{\circ} 50' N.$, and consider that latitude as a dividing line between the lands discovered respectively by Cook and Peary.

If Bradley Land and Crocker Land are separated by icy straits, it seems just barely possible that the Big Lead extends thru or terminates at these straits. Or the Big Lead may extend beyond or die out west and south of Crocker Land. Any of these possibilities, however, are conjectures at present and a problem of the future.

Whether Bradley Land stops at $85^{\circ} 11' N.$, or whether it extends any farther north is unknown. It is not likely, however, that it extends beyond $86^{\circ} N.$ For, from Cook's observations, it is surely separated from Cook-Land-Ice by a stretch of icy sea.

Peary offers one observation on his 1909 trip, pointing to the existence of lands in the Western Arctic. This is a sounding by Professor Marvin. Peary says:⁴⁹ "At the next camp Marvin made a sounding, and to our surprise reached bottom at only three hundred and ten fathoms * * * * and after a short march—only some ten miles * * * *

⁴⁹ *The North Pole*, page 246.

Marvin made another sounding of seven hundred fathoms and no bottom." The exact latitude of these soundings is not mentioned, and the text is somewhat involved, but it may mean that these soundings were made at the two camps following the camp at $85^{\circ} 23'$ N., that is, somewhere below 86° N. Harris himself, the originator of the theory of lands in the Central Arctic, writes of these soundings:⁵⁰ "These soundings prove the existence of a continental shelf covered by about 100 fathoms of water, and whose edge, north of Cape Columbia, lies about 46 sea miles from the shore. In latitude $84^{\circ} 29'$ the depth was found to be 825 fathoms, while in latitude $85^{\circ} 23'$ it was found to be only 310 fathoms. This diminution in depth is a fact of considerable interest in reference to the possible existence of land to the westward." This "land to the westward," as has been pointed out already by Baldwin, is, of course, Bradley Land. But while these soundings may indicate connection between this shoal and Bradley Land, while it is possible that this ridge is a shelf of Bradley Land, it is not necessarily so, since, on account of the distance, it may be rather in the nature of a separate submerged island. In either case, however, it is decided evidence that there are still more unknown islands in the unknown Arctic.

⁵⁰ Appendix of Peary's *The North Pole*, page 338.

Bradley Land is charted roughly in the New York *Herald*, of October 1, 3, 5, and 7, 1909. It is charted correctly in *My Attainment of the Pole*, and also correctly, I hope, on the chart accompanying this monograph. It is charted also on the chart accompanying Peary's book *The North Pole*. This chart is by Mr. Gilbert H. Grosvenor and is a revised edition of a "Map of the North Pole Regions, prepared by Gilbert H. Grosvenor, Editor."⁵¹ The chart in Peary's book is entitled, "The Arctic Region, showing Explorations towards the North Pole, Prepared by Gilbert H. Grosvenor, Director and Editor of the National Geographic Society." On this chart, Mr. Grosvenor has charted a land north of Crocker Land and south of 85° N., and marked it "Bradley Land." While the position given to this land by Mr. Grosvenor does not extend far enough north, nevertheless his placing "Bradley Land" on the map shows that the able editor of the *National Geographic Magazine* believes in Bradley Land.

There are doubtless some persons to-day who disbelieve in the existence of Bradley Land, just as formerly some persons disbelieved in the existence of Wilkes Land. Indeed, certain scientific bodies at present ignore Bradley Land precisely as certain scientific bodies in the past ignored Wilkes Land. But Bradley Land cannot be annihilated as a geo-

⁵¹ *The National Geographic Magazine*, Vol. XVIII., July, 1907.

logical formation by a flourish of the pen nor by ignoring it, nor can it be claimed, if re-found, as a new discovery. Present disbelief will not destroy the entity of Bradley Land any more than past disbelief destroyed the entity of Wilkes Land. For more than seventy years, again and again, the existence of Wilkes Land was denied. Repeated attempts were made to wipe it off the map. It was claimed many times that ships had sailed over Wilkes Land. Nevertheless, in 1912, Captain Davis sailed along the coast of Wilkes Land, and at two places landed parties from Dr. Mawson's expedition on Wilkes Land. Something similar will doubtless take place in regard to Bradley Land as took place in regard to Wilkes Land. Wilkes Land, revisited and its existence verified by Davis, has been quietly accepted as an actuality by geographers. In the same way, if some explorer of the future finds land in $84^{\circ} 20' N.$ - $85^{\circ} 11' N.$, by $102^{\circ} W.$ - $106^{\circ} W.$, he will have proved the existence of Bradley Land, and some historical geographer of the future may be relied upon to see to it that Cook receives due credit for its discovery. If Bradley Land is an actuality, it is tangible, irrefutable proof of Cook's discoveries. If Bradley Land exists, the credit of discovering it cannot be taken away from Cook, any more than the credit of discovering Wilkes Land can be taken away from Admiral Wilkes.

VI.

LAND-ICES IN THE ARCTIC OCEAN.

THE second important discovery of Cook's is the glacial land ice in 87° N.-88° N. It is mentioned in Cook's cablegram published September 2, 1909; described more fully in *The Conquest of the Pole*; and spoken of again in almost identical words in *My Attainment of the Pole*. A closely similar occurrence was observed by Peary on his 1906 trip in about 86° N.-60' W.⁵² The most descriptive temporary appellations for these two phenomena perhaps are Cook-Land-Ice and Peary-Land-Ice. What are Cook-Land-Ice and Peary-Land-Ice? How are they formed? What do they mean?

An answer to these questions is not easy, indeed it is not possible, at present. In Cook-Land-Ice and Peary-Land-Ice we have two cases of what two experienced polar travelers considered was land-ice far from any known land. To the best of my knowledge, nothing else of the kind has been reported from the Antarctic nor even from the Arctic. This is a question of considerable interest in glaciology which, so far as I know, has not received as yet the attention it should receive from glaciologists.

⁵² *Nearest the Pole*, page 131.

The first explanation which suggests itself is that, in the vicinity of those Land-Ices, there is land which was beyond the range of vision of the two explorers. If this is the case, as the drift of the Arctic pack is in the main from Bering Strait towards Spitzbergen, these unseen lands should lie to the westward of those Land-Ices. It is conceivable that there is an island rising above sea level not far to the west of Cook-Land-Ice, and that this island is the cause of Cook-Land-Ice. This, however, can hardly be the case with Peary-Land-Ice. It seems scarcely possible that there could be a land of any size between Peary's tracks of 1906 and 1909 without his having seen it from some point, and it seems most improbable that there could be any land east of Peary-Land-Ice.

A second possible explanation is that these Land-Ices are formed on underlying shoals or submerged banks: on the tops, so to speak, of sunken islands. Mr. Baldwin has pointed out that, from the ice conditions found by Peary in 87° N.-88° N., there is some evidence of a submerged island or shoal under Cook-Land-Ice. Between 87° N.-88° N., that is due east of Cook-Land-Ice, Peary traveled, both going and coming, across a region where the ice conditions differed entirely from those he observed anywhere else between Grant Land and the North Pole, a region where there

was almost as much open water as ice.⁵³ Baldwin's explanation is that the pack drifting from west to east is divided and broken up by Cook-Land-Ice, and that the ice over which Peary traveled between 87° N.-88° N., consists of floes shattered in their passage north and south of Cook-Land-Ice. The explanation is plausible, and, in view of Baldwin's great Arctic experience, it comes with telling force from him.

There is one fact, however, which may be cited in rebuttal of Mr. Baldwin's explanation, namely, that Captain Bartlett sounded at 87° 12' N., in 1260 fathoms with no bottom,⁵⁴ and this is a decided piece of evidence against a submerged bank not far to the west. It points rather to the deep ocean which Peary found at the North Pole, where he sounded in 1500 fathoms no bottom,⁵⁵ extending in the Western Arctic for some degrees of latitude to the south of the North Pole.

Cook-Land-Ice and Peary-Land-Ice certainly offer some interesting problems. Near them neither of their discoverers sighted land. Cook says of Cook-Land-Ice in *The Conquest of the Pole* that "the combined tabulations do not warrant the positive assertion of either land or sea for this

⁵³ *The North Pole*, pages 259, 260, 262, 265, 303, 304, 307.

⁵⁴ *The North Pole*, page 262.

⁵⁵ *The North Pole*, page 304.

area." Neither Cook nor Peary made any soundings near enough to these strange formations to determine positively whether there are or are not shoals beneath them. If there are, Bartlett's sounding in $87^{\circ} 12' N.$, suggests that the sides of these sunken islands are extremely abrupt. This may be the case and, somewhat like, for instance, Peter Island in West Antarctica, Cook-Land-Ice and Peary-Land-Ice may be the ice-capped tops of sunken islands rising sheerly amid greater surrounding depths. Whatever the real explanation may be and until further observations clear up the matter, the finding far from known lands in the Arctic, by Cook of old ice without pressure lines and hummocks and with the hard, waving surface of glacial ice, and by Peary of floes which looked as if they did not move even in summer and of berg-like pieces of ice discolored with sand, suggest the probability that there are either some still unknown islands, or else some shoals or banks, or perhaps both, in the Western Arctic. If there is such an island in the vicinity of or such a shoal under Cook-Land-Ice, it might well prove to be the extreme northern point of Mr. Harris' theoretical lands. At present, however, this problem is in a state of uncertainty and surmise, and awaits solution.

VII.

THE NORTH POLE.

THE third and most important geographical fact announced to the world by Cook in his cablegram published in the New York *Herald* 2 September, 1909, and described more at length in *The Conquest of the Pole*, is that there is ocean, covered with a smooth sheet of level ice, at the North Pole. If that description of the North Pole is accurate, the writing of it by Cook, first of all men, on the face of it, is proof that Cook is the discoverer of the North Pole.

That Cook's description is accurate is in the first place verified to some extent by the word "purple" used in Cook's cablegram published 2 September, 1909. This word needs explanation, because it carries with it internal evidence of Cook's accuracy as an observer of nature; and to explain it, one must leave geography for a moment, and talk art.

"Purple snows" is linguistic impressionism. "Purple snows" is an attempt to suggest with words what Frank Wilbert Stokes has done with paints in his superb pictures of the Polar regions. Yellow, red and blue are the three primary pigments. Each one of these has its complementary color, which consists of the chro-

matic combination of the other two. The complementary color of yellow, the mixture of red and blue, is purple and in pale tints is sometimes called violet. Words cannot describe exactly an absolute color: they can only hint at it. On a sunny day, the color of the sun and of the lights is yellowish, leaning sometimes toward red, and, therefore, the color of the shadows is the complementary of yellow, a more or less reddish or bluish violet or purple. When sunlight shines on a snowy landscape, with white as the only local color, these spectral colors are much accentuated: the whole color scheme is yellowish light and purplish shadow. With the sun just above the horizon, a snowscape is yellowish in the direction of the sun, and everywhere else it is purplish. With the sun just below the horizon, a snowscape is wholly in purple shadow.

In the middle of April, these are exactly the conditions under which an observer at the North Pole would see the great frozen ice sheet. Towards the sun, he would see a small yellowish segment, but the rest of the vast level snow expanse would be of a reddish blue, that is purple. The effect of the mass as a whole, would be that of a "field of purple snows." The use of the word "purple," therefore, by Dr. Cook, who is not a trained artist, proves that he has the eye of an impressionist painter and that he is an extremely accurate observer of his surroundings.

That Cook's description is accurate is in the next place certified to by Peary. Peary corroborates Cook absolutely about the conditions at the North Pole. And Cook is corroborated by Peary not only by what Peary saw, but also by what Peary did. If there were anything in the Western Arctic between the North Pole and $87^{\circ} 47' N.$, but "an endless field of purple snows," smooth and slippery, Peary could not have covered the intervening 133 geographical miles in two days and a few hours. Peary, therefore, from observation and from actual physical performance, proves that Cook's most important statement is true. The field of level ice at the North Pole, which Cook discovered and was the first to tell the world of, and whose existence Peary verified, is a fact.

That Cook penned the first description of the North Pole is an historical fact, and that this description is based on Cook's own unaided observations is easily proved. This proof rests on the fact that an explorer can make positive and definite statements about unknown polar regions only within the limits or extent of his range or field of vision. It is true that that field is anything but a restricted one in dimensions, for there are numerous cases where high mountains rising above the horizon or land-blanks have been sighted from great distances. But it is also true, on the other hand, that the polar field of vision is full of

pitfalls, and that within it strange blunders have been made, as, for instance, when lands close to an explorer have escaped his notice.

That high mountain ranges and land-blanks over high lands have been seen at immense distances in the Polar regions may be verified from the three following occurrences. Sir James Clark Ross⁵⁶ saw the land-blink over South Victoria Land, some hours before he actually sighted its mountain peaks, which "must have been more than one hundred miles distant when first seen." Lieutenant Commander Cadwalader Ringgold, U. S. N.,⁵⁷ on January 13th, 1840, saw "the loom usual over high land" over the exact position, about one hundred miles distant, where the Balleny Islands lay: a fact noticed by Mr. C. E. Borchgrevink⁵⁸ and explained at length by the present writer.⁵⁹ Lieutenant Charles Wilkes, U. S. N.,⁶⁰ states that on February 17th, 1840, "Appearances of land were also seen to the southwest, and its trending seemed to be to the northward." Wilkes

⁵⁶ *Voyage of Discovery and Research in the Southern and Antarctic Regions, 1847*, Vol. I., page 183.

⁵⁷ *Narrative of the United States Exploring Expedition, 1845*, Vol. II., page 469.

⁵⁸ *The Geographical Journal*, 1900, Vol. XVI., page 381.

⁵⁹ *Antarctica*, 1902, pages 142, 179.

⁶⁰ *Narrative of the United States Exploring Expedition, 1845*, Vol. II., page 327.

charted this as Termination Land, too far to the east, but in the exact direction of the "Highland" sighted in 1902 by Dr. E. von Drygalski.⁶¹ That Wilkes' "appearances of land" must have been the land-blink over Drygalski's highland, altho Wilkes was perhaps one hundred and twenty-five miles distant when he noted it, is proved from Ross' still more distant view of the land-blink over South Victoria Land, and shows that Drygalski's highland is the western coast of the promontory of Antarctica, named by Wilkes Termination Land.

That atmospheric conditions, on the contrary, are sometimes of such a nature as to prevent explorers from seeing lands lying immediately before them, may be gathered from the following instances. When Julius Payer and Karl Weyprecht in 1873 were actually frozen in for the winter "often as we went on deck and cast our eyes over the wastes" they saw only the ice. Yet after some long, dismal days "a wall of mist, lifting itself up suddenly, revealed * * * the outlines of bold rocks * * * Kaiser Franz Josef's Land."⁶² Peary himself, when standing with Astrup on Navy Cliff in 1892, thought that he was on the edge of the Arctic ocean, for he says: "Be-

⁶¹ *Zum Kontinent des Eisigen Südens*, 1904.

⁶² Julius Payer: *New Lands Within the Arctic Circle*, 1876, Vol. I., pages 277-279.

yond this the bay ice seemed perfectly smooth and unbroken, and stretched away uninterrupted to the distant white horizon of the north eastern Arctic ocean. We could distinctly discern the broad expanse of the ice-covered sea, but the distance was too great for us to make out any details of the surface."⁶³ In reality, Peary was about one hundred miles, or some fourteen degrees of longitude, distant from the sea coast—a fact brought out by Major General Greely⁶⁴—and was overlooking Mylius Erichsen Land, across whose site Peary wrote in 1907: "East Greenland Sea."⁶⁵ Captain Larsen, a careful and reliable observer, in 1893, landed on Christensen Island in Larsen Bay, directly on the edge of Nordenskjold Land. Nevertheless, owing to peculiar atmospheric conditions, he did not see the coast immediately before him, and thought he might be at the entrance of a big strait.⁶⁶

It is evident from these examples, and there are many others, that while a traveler in the Polar regions may, under certain conditions, make dis-

⁶³ *Northward over the Great Ice*, Vol. I., page 347.

⁶⁴ *Handbook of Polar Discoveries*, 1910, page 256.

⁶⁵ *Nearest the Pole: Map*.

⁶⁶ *Mittheilungen der Geographischen Gesellschaft in Hamburg*, 1891–92, Heft II., 1895, pages 245–298. *Norske G. S. Aarborg*, 5, 1893–94, pages 115–131. *The Geographical Journal*, 1894, Vol. IV., pages 333–344. *Antarctica*, pages 199, 200.

coveries at distances of over one hundred miles, he may, under other conditions, be unaware of what lies immediately before him. When, therefore, there is only a level plain of ocean ice, such as there is at the North Pole, in front of a traveler, it is impossible for him, in the clearest weather, to see nonexistent lands; and yet, without patient observations, kept up for many days, he cannot be sure that atmospheric conditions do not blot out some mountain range otherwise within his field of vision. It is safe to say that no explorer, looking hurriedly over some unknown stretch of the Arctic expanse, could state positively whether there is land or sea twenty-five miles away from his position.

Turning now to the narratives of Dr. Nansen,⁶⁷ Captain Cagni,⁶⁸ and Admiral Peary in 1906, the three explorers who, before Cook, approached most nearly to the North Pole, it will be found that there are no statements by any one of these men which would have given Cook any trustworthy information as to whether there was land or sea at the North Pole. Neither Nansen, Cagni, nor Peary in 1906, pretend to have seen from their farthest points anything beyond the horizon line, a distance at the most of fifteen miles.

⁶⁷ *Farthest North*, 1897.

⁶⁸ Luigi Amedeo of Savoy, Duke of the Abruzzi: *On the 'Polar Star' in the Arctic Sea*, 1903.

When, on his 1906 trip, Peary stopped at $87^{\circ} 6'$ N., he was 174 geographical miles from the North Pole, and nearly thirty degrees of longitude, that is, altho the mileage is hard to figure out accurately, something like one hundred miles east of the nearest point of Cook's route. Any surmises, based on any statements of Nansen, Cagni, and Peary in 1906, as to what there was twenty-five miles away from the farthest points of these three explorers, would, before Cook's journey, have been guesses.

Not only could no one have known beforehand that in the section of the Western Arctic between 88° N., and the North Pole there was no land but only frozen ocean; but, in addition, it was still more impossible for anyone, until that frozen ocean was actually traversed, to have announced, except as a guess, the nature of its icy surface. Peary himself, on his 1909 trip, had no suspicion, altho he had been at $87^{\circ} 6'$ N., that he would strike a wide space of dangerous, broken ice between 87° N.- 88° N. Peary's prior observations, and especially Nansen's observations, strongly pointed to the Arctic Ocean ice consisting of floes intersected everywhere by pressure ridges, over which a traveler and his dogs must slowly and painfully drag the heavy sledges. These observations any one can easily verify for himself visually by looking at Nansen's photographs in *Farthest North* and still more at the illustrations in Peary's *Nearest the*

Pole. One of the latter, a photograph entitled "A Sample of the Arctic Pack,"⁶⁹ by its very title seems intended to bring home to an onlooker the kind of surface a traveler across the Western Arctic ocean might expect to find extending to the North Pole. Another, a colored illustration by Mr. Albert Operti,⁷⁰ shows that there are pressure ridges up to $87^{\circ} 6' N.$ No human being, before Cook's journey, could have foreseen with any certainty and except as guesswork, that on the western side of the Arctic near to the North Pole there are no pressure ridges, but a smooth field of level floes.

Neither was there any scientific theory or hypothesis about the conditions at the North Pole which, before Cook's journey, offered any guarantee of accuracy. The only two theories of any importance were absolutely contradictory. Harris surmised land at the North Pole and plotted it on his chart. Nansen surmised ocean at the North Pole and delineated it on his chart. To an outsider, it was a toss-up as to whether Harris or Nansen was right.

As it was then, it is still to-day. It remains a toss-up, as to which theory about the unknown Arctic, Harris' or Nansen's, is right. Guess you

⁶⁹ *Nearest the Pole*, page 157.

⁷⁰ *Nearest the Pole*, Frontispiece.

may, but nobody knows. No one to-day can state with certainty what there is in the Eastern Arctic between the North Pole and Dr. Nansen's and Captain Cagni's farthest points. And still more uncertain are we at present of what there may be in the Western Arctic, between 75° N.—88° N., 115° W.—180°. There may be land, there may be water, there may be both: no one knows. It would be presumptuous for any scientist to lay down the law in the matter.

In view of all these facts it becomes certain that Cook must have written his description of the North Pole from his own observations. For until Cook actually traversed the Western Arctic between 88° N., and the North Pole, and told the world the facts, no one could have said whether in that area there was land or sea, nor have stated anything of the conditions of its ice, with its unusual, perhaps unique, flat surface. But Cook in his first cablegram stated definitely, positively, and finally that at the North Pole there was no land, but sea frozen over into smooth ice, and Peary confirmed Cook's statements. Cook was accurate, and the only possible inference is that Cook was accurate because Cook knew, and the further inevitable conclusion is that since Cook knew, Cook had been at the North Pole.

VIII.

ANIMALS ON THE ARCTIC OCEAN ICE.

THERE is another Arctic problem also which, as a result of some observations of Admiral Peary on his 1909 trip, has been placed before the scientific world for solution. This problem is zoölogical, and may have some bearing as evidence on Cook's discoveries and Harris' theory. Just below 86° N., Peary records that 'While we were engaged in this business we saw a seal disporting himself in the open water of the lead.'⁷¹ And again in about 86° 20' N., he states: "Along the course of one of these leads we saw the fresh track of a polar bear going west, over two hundred miles from land."⁷² Close to 87° N., he says that: "During the day we saw the tracks of two foxes in this remote and icy wilderness, nearly two hundred and forty nautical miles beyond the northern coast of Grant Land."⁷³ And again at some spot not far from 88° N., Peary observed: "Here we noticed some fox tracks that had just been made. The animal was probably disturbed by our approach.

⁷¹ *The North Pole*, page 250.

⁷² *The North Pole*, page 252.

⁷³ *The North Pole*, page 257.

These are the most northern animal tracks ever seen.”⁷⁴

Can anything be deduced from these animal tracks, and if so, what? Do they mean that there is land near to where they were seen? Or do they mean that Arctic animals roam over the Arctic ocean to points farther away from land than has been believed? There were certainly fewer evidences of animal life noticed on the drift of the *Fram* when she was farthest away from known lands. It is generally supposed that, as noted by Baldwin, Arctic animals, in their search for food, stay near land. Seals feed principally on shrimps, which they find in shallow waters. Bears eat mainly seals, which live along coastal lands. Foxes subsist on the refuse left by bears and also on Arctic hares which, feeding on vegetation, live wholly on land.

It seems almost inconceivable that a polar bear should be over two hundred miles from (Grant) land, foxes two hundred and forty miles from (Grant) land, and one fox even three hundred miles from (Grant) land. These animals were not interested in the North Pole: why should they go where there was nothing to eat? It would seem as tho these signs of animal life, in themselves alone, prove almost to a certainty that there

⁷⁴ *The North Pole*, page 307.

is land north of Crocker Land and Grant Land: that there is some land in the neighborhood of those tracks where these animals had their habitat.

Of such an habitat there are three possibilities. One is Bradley Land, which may perchance extend to the eighty-sixth parallel or even farther. Another is an island west of Cook-Land-Ice. A third is an island beyond 87° N., to the east of Peary's route of 1909. For of the region between 87° N.-89° N., and 40° W.-0°, that is of the region east and northeast of the fox tracks seen by Peary, nothing whatever is known. It must be added, however, that the drift of the ice, as observed in the Spitzbergen seas from Parry in 1827⁷⁵ onwards, is strong evidence against the last possibility.

In the fox tracks near 87° N., and 88° N., especially, there is certainly a strong presumption of actual land rising in the Arctic not far to the west of Cook-Land-Ice, or not far to the east of Peary's route. If there is such land, say in 110° W., or in 40° W., the fox in 88° N., was about 100 miles from possible land, about 180 miles from Bradley Land, and about 300 miles from Grant Land; the foxes in 87° N., were about 130 miles from possible land, about 150 miles from Bradley Land, and about 240 miles from Grant Land; the bear

⁷⁵ *Narrative of an Attempt to Reach the North Pole, 1828.*

in $86^{\circ} 20'$ N., was about 140 miles from possible land, about 130 miles from Bradley Land, and about 200 miles from Grant Land.

It is certainly more likely that these animals came from Bradley Land than from Grant Land, and if lands exist beyond Cook-Land-Ice or east of Peary's track, still more likely that the foxes came from there.

While there is no absolute proof afforded by these animal tracks of the existence of land north of Grant Land and Crocker Land, there is certainly strong presumption of it. And this presumption tends towards corroborating Cook's discoveries and Harris' theory. But it must be added that whatever may be the case about such lands, Peary's observations show that Arctic animals wander farther from land than they were formerly supposed to.

There can be no doubt that Peary's discovery of Crocker Land, of a possible shoal at Peary-Land-Ice, and of a submarine ridge in 310 fathoms just south of 86° N., and Cook's discovery of Bradley Land and of a possible shoal at Cook-Land-Ice, prove that the northern reaches of the known Western Arctic are neither wholly sea nor wholly land, but that they are an icy sea interspersed with some islands and possibly with some shoals or banks. The observations of both explorers, therefore, validate, in regard to much

of the Western Arctic, Harris' theory. But their observations shed no light on the vast unexplored Arctic area situated between Alaska, Siberia and the North Pole, and about this Harris' and Nansen's theories both still hold the fort as working hypotheses.

IX.

THE FUTURE OF ARCTIC EXPLORATION.

THE final proofs of Cook's and Peary's discoveries rest in the Arctic regions. Either these proofs exist or they do not exist. Either they are physical facts or they are not physical facts. If any explorer crosses anew the Polar expanse, and finds at the North Pole smooth fields of level ice, and an ocean deep beneath, he will make certain the fact that Cook's and Peary's statements about the North Pole are accurate. But it must be noted that this smooth ice at the North Pole might change in character. If anyone should find Cook-Land-Ice again, it will also settle Cook's claims affirmatively in favor of Cook. But this likewise is an uncertain piece of evidence, for Cook himself was uncertain whether there was land or sea underneath Cook-Land-Ice, and if there is the latter, Cook-Land-Ice might move away. Bradley Land, fortunately, is a very different matter. There is a land extending over fifty geographical miles in length and of which Cook gives a photograph. No one but Cook has seen Bradley Land. No one but Cook has been near its position. Bradley Land is wholly a discovery or wholly an invention of Cook's. If Bradley Land is a real entity, its rediscovery will settle absolutely beyond

question the validity of Cook's claims as a discoverer. For it will prove that Cook's statements about Bradley Land were based on actual knowledge, and this in itself will verify Cook's other statements, and prove definitely that those other statements also were based on actual knowledge.

In view of all the problems which remain to be solved in the Arctic regions, it is rousing news to learn that three expeditions are projected, which, it may be hoped, will bring back a great deal more information on these various problems. One of these expeditions is the proposed trip of Captain Amundsen, who intends to sail thru Bering Strait in the summer of 1914, push the *Fram* into the Arctic ice and let her drift as the forces of nature will across the Arctic regions. The map accompanying Amundsen's paper describing his plans shows the drift from Bering Strait, according to Dr. Nansen passing round the North Pole in the Eastern Hemisphere, according to Professor Mohn passing the North Pole—in the region of Bradley Land and Cook-Land-Ice—in about 87° N., in the Western Hemisphere.⁷⁶ While no one can foretell in the least in which hemisphere the *Fram* may drift past the North Pole, Amundsen will probably bring back fresh knowledge

⁷⁶Roald Amundsen: "A Proposed North Polar Expedition." *The Geographical Journal*, 1909, Vol. XXXIII., pages 400–462.

about the Central Arctic and further confirm or set aside either Harris' or Nansen's theory. If the *Fram* passes at the North Pole, Amundsen will verify Cook's and Peary's statements. If the *Fram* passes between Grant Land and the North Pole, Amundsen may or may not get within sighting distance of Bradley Land, and may or may not tell us something new of Cook-Land-Ice. But, whatever the results, everyone will wish Amundsen a safe and successful journey.

The second expedition is to be led by Mr. Donald B. MacMillan, who has already made a name for himself as an Arctic traveler in the Peary expedition of 1909. Mr. MacMillan is to start in 1913, and to follow as nearly as possible Cook's route from Smith Sound across Ellesmere Land and Oscar Land to the northern extremity of Axel Heiberg Land. Thence the party is to cross the ice straight to Crocker Land. In the two papers announcing the plans of the expedition,⁷⁷ the maps accompanying the papers both locate Crocker Land correctly between 82° 30' N.-83° 20' N. Bradley Land is not spoken of in either paper, nor is it marked on either map. But if Mr. MacMillan, whose fine performance proves a most capable traveler, is fortunate enough to reach Crocker Land—

⁷⁷ *Science*, March 15, 1912, N. S. Vol. XXXV., pages 404-408. *The American Museum Journal*, May, 1912, Vol. XII.: map on cover.

and no one can foretell what an explorer may or may not be able to actually carry out amid Polar dangers—he will be on the threshold of a region which still keeps many geographical secrets. If he can push on to 84° N., he may clear up the mystery of the unknown sixty geographical miles beyond Crocker Land to the north of $83^{\circ} 20'$ N.: whether there is continuous coast or ice-sheeted water. If he advances to beyond 85° N., he may possibly determine the northern limits of land in the Western Arctic. And, in either case, he will disprove or prove, to the satisfaction of all geographers, the existence of Bradley Land. Let us trust Mr. MacMillan may reach Crocker Land, push on to Bradley Land, and return in safety with fresh laurels.

The third expedition, under the command of Mr. Vilhjalmur Stefansson, who has recently returned from a successful ethnological search round the shores of Coronation Gulf, is to proceed to Banks Land and Prince Patrick Island, and from there push west and northwest into the unknown Arctic. Since this expedition is not to go to the regions traversed by Cook and Peary, it will not throw any light on the question of the discovery of the North Pole, but it may return with much new geographical and ethnological knowledge, and it may settle which theory, Harris' or Nansen's, about the Central Arctic, is correct. Let us wish Mr. Stefansson

as much success on his next journey as on his last.

It need not be supposed that Arctic exploration will cease until all the great secrets of the Arctic regions have been revealed. Physical geographers must know how much is ocean and how much is land round the North Pole. Glaciologists must know about the strange ice formations of Cook-Land-Ice and Peary-Land-Ice. Ethnologists must know whether perchance there are any inhabitants on the unexplored lands in the Western Arctic. Historical geographers must know who discovered the North Pole. This latter question is one of too great importance in the history of exploration to be laid aside. Historical geographers—men of the stamp of Humboldt and Henry Harrisse among the dead; and of William Spiers Bruce, Jean B. Charcot and Otto Nordenskjold among the living—are bound to keep it alive until it is solved in accordance with the facts and the evidence. This question may be settled in our lifetime, it may only be settled a hundred years or two hundred years hence, but it is certain to be settled eventually by the supreme court of geographical discovery, the historical geographers, who will render a verdict biased neither by partisanship nor by fear of ridicule, but a verdict based solely on the facts.

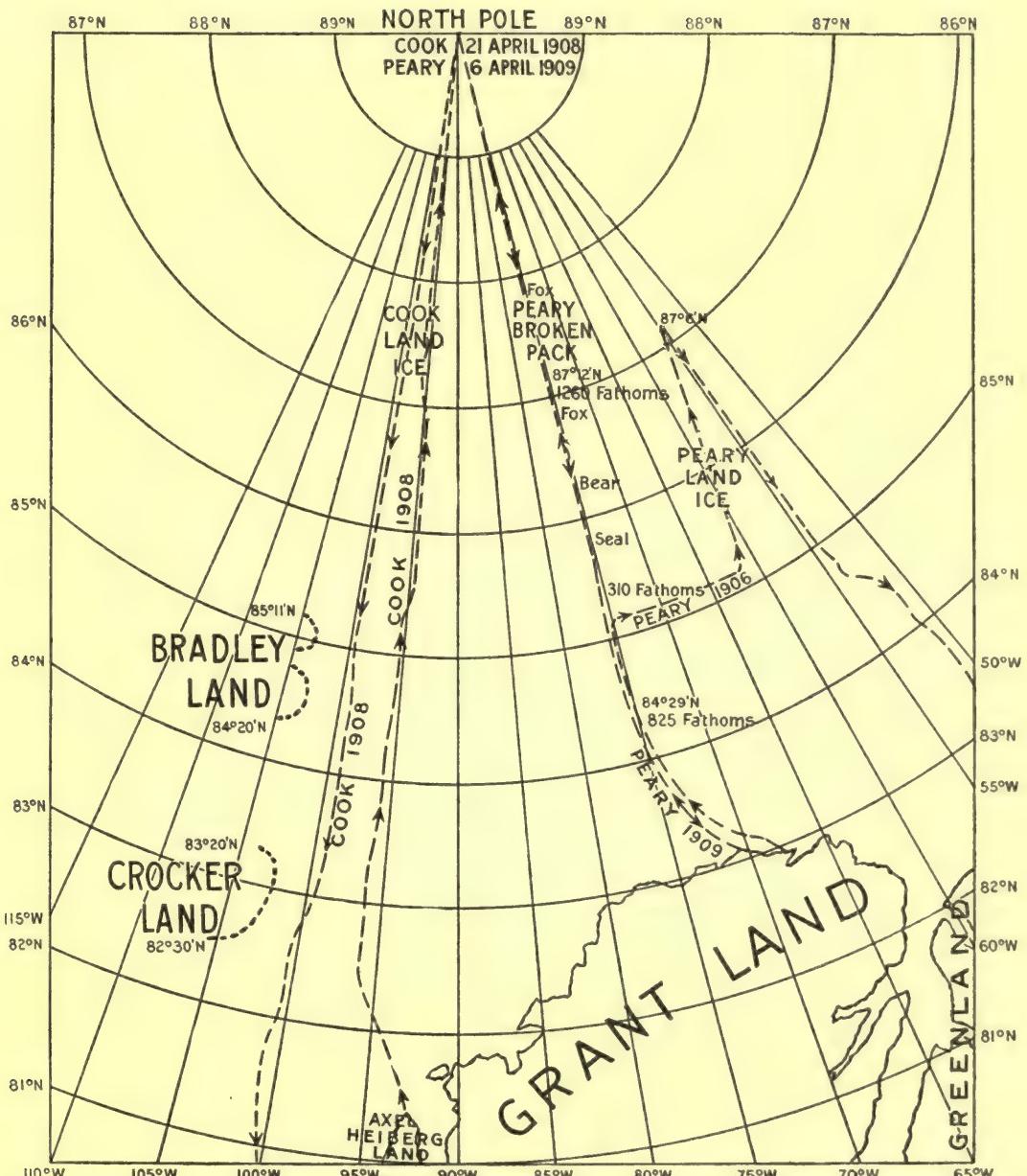


CHART OF SEGMENT OF THE WESTERN ARCTIC NORTH AND NORTHWEST OF GRANT LAND
DRAWN BY EDWIN SWIFT BALCH. DECEMBER 1912.



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